CLAIMS:

1. A method for modulating the activity of an NTPDase enzyme comprising exposing the enzyme to a C8 substituted purine nucleotide, wherein the purine nucleotide is substituted at the C8 position with a substituent other than H.

2. The method of claim 1, wherein the purine nucleotide is adenine.

3. The method of claim 1, wherein the substituent is selected from the group consisting of an ether, a thioether and an amine.

4. The method according to claim 1, wherein the activity of the NTPDase enzyme is inhibited.

5. The method of claim 3, wherein the substituent is an ether, and wherein the ether substituent has the structure:

-O-X.

6. The method of claim 5, wherein X is an alkyl group.

7. The method of claim 6, wherein X is selected from the group consisting of:

(a) C_7H_{13} (cycloheptyl);

(b) $(CH_3)_3CCH_2$; and

(c) $CH_3(CH_2)_n$, wherein $1 \leq n \leq 5$.

8. The method of claim 3, wherein the substituent is a thioether, and wherein the thioether substituent has the structure:

-S-X

9. The method of claim 8, wherein X is an alkyl group.

10. The method of claim 9, wherein X is selected from the group consisting of:

(a) C_7H_{13} (cycloheptyl);

(b) $(CH_3)_3CCH_2$; and

(c) $CH_3(CH_2)_n$, wherein $1 \leq n \leq 5$.

11. The method of claim 3, wherein the substituent is an amine, and wherein the amine substituent has the structure:

-NH-X.

12. The method of claim 11, wherein X is an alkyl group.

13. The method of claim 12, wherein X is selected from the group consisting of:

(a) C_7H_{13} (cycloheptyl);

(b) $(CH_3)_3CCH_2$; and

(c) $CH_3(CH_2)_n$, wherein $1 \leq n \leq 5$.

14. The method of claim 1, wherein the purine nucleotide is selected from the group consisting of:

compound **6a**, compound **6b**, compound **6c**, compound **6d**, compound **6e**, compound **7a**, compound **7b**, compound **7c**, compound **7d**, compound **7e**, compound **8a**, compound **8b**, compound **8c**, compound **8d**, and compound **8e**.

15. The method of claim 1, wherein said enzyme is in a biological system, and said method results in a modulation of the level in said system of:

(a) a purine nucleotide;

(b) a purine nucleoside;

(c) a metabolite or derivative of (a) or (b); or

(d) any combination thereof.

16. The method of claim 1, wherein said enzyme is in a biological system, and said method results in a modulation of the activity of a biological process in a said system, wherein said process is affected by the level in said system of:

(a) a purine nucleotide;

(b) a purine nucleoside;

(c) a metabolite or derivative of (a) or (b); or

(d) any combination thereof.

17. The method of claim 16, wherein the biological process is aggregation and thrombogenecity.